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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,288	07/03/2003	Fabrice Diehl	PET-2092	5777

23599 7590 03/07/2006

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EXAMINER
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BROWN, JENNINE M

ART UNIT	PAPER NUMBER
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1755

DATE MAILED: 03/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/612,288

Applicant(s)

DIEHL ET AL.

Examiner

Jennine M. Brown

Art Unit

1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3-10 and 12-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-10 and 12-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

***Transitional After Final Practice***

Applicant was granted non final status via Petition to the Group Director on 1/3/2006, therefore the finality of the office action of 9/27/2005 has been withdrawn. The amendment submitted on 1/27/2006 has been entered.

***Claim Objections***

Claims 3-5 are objected to because of the following informalities: these claims now depend upon claim 21 which uses a closed Markush language using consisting of, therefore the dependent limitation may not improperly broaden the independent claim. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 3-4, 9-10, 12, 15-16, 18-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ryan, et al. (EP 0164162 A1) in view of Rony, et al. (US 3855307).

See entire document. Ryan, et al. disclose a process for preparing supported hydroconversion catalysts and catalysts thus prepared containing one each of Mo or W and of Co and/or Ni incorporated into a support by impregnation with ethanolamine and water and the catalyst produced therefrom. Typical amine alcohols comprise monoethanolamine, propanolamines, butanolamines, diethanolamines, 2,2-diamino-1,3-propanediol, 2,2,3-triamino-1-propanol, triethanolamine (p. 2, l. 27-p. 3, l. 2) or 3-amino-1-propanol (p. 12, l. 7-8). A typical polyamine is ethylene diamines (p. 3, l. 2). Typical catalyst supports are refractory oxides, such as alumina, silica and mixtures thereof. Crystalline synthetic zeolites such as aluminosilicates, iron silicates, gallium silicates, magnesia, titania and mixtures thereof may also be used as supports (p. 5, l. 29-35). Suitable hydroconversion conditions for processing said catalyst comprise a temperature of 350-420 °C, total pressure of 75-200 bar, partial hydrogen pressure of 60-200 bar, space velocity of 0.4-1.5 kg oil/L catalyst/hour and a hydrogen feed rate of 250-2500 NI/kg oil feed (p. 6, l. 17-22). It is also disclosed that the hydrogen-containing gas may contain up to about 10% of hydrogen sulfide (p. 6, l. 30-31). The catalyst is simultaneously impregnated with the metals and organic compound, dried then calcined (p. 9, l.1-30). Because the hydrogen gas contains hydrogen sulfide, which is the same compound preferred by applicant for sulfurization of the catalyst.

It is evidenced in Rony, et al. (US 3855307) that the same catalyst formulation may be used for hydroformylation, isomerization, nitration, oxidation and carbonylation processes (col. 2, l. 12-19). Further amine compounds such as diethanolamine, N-aminoethyl ethanolamine, N-methyl diethanolamine (col. 6, l. 8-9) are disclosed.

It would have been obvious to one of ordinary skill in the art to substitute any of the chemical compounds in the Markush group for one another based on similar structural similarities and utility owing for slight differences in the characteristics and performance but with an understanding that this type of experimentation would eventually provide the optimum combination of elements to provide for a highly active and/or selective catalyst composition. A prima facie case of obviousness may be made when chemical compounds have very close structural similarities and similar utilities. "An obviousness rejection based on similarity in chemical structure and function entails the motivation of one skilled in the art to make a claimed compound, in the expectation that compounds similar in structure will have similar properties." In re Payne, 606 F.2d 303, 313, 203 USPQ 245, 254 (CCPA 1979). See In re Papesch, 315 F.2d 381, 137 USPQ 43 (CCPA 1963) (discussed in more detail below) and In re Dillon, 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1991) (discussed below and in MPEP § 2144) for an extensive review of the case law pertaining to obviousness based on close structural similarity of chemical compounds. See also MPEP § 2144.08, paragraph II.A.4.(c).

Claims 6-8, 13-14, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ryan, et al. (EP 0164162 A1) in view of Rony, et al. (US 3855307) as applied to claims 3-4, 9-10, 12, 15-16, 18-23 above, and further in view of Shukis, et al. (WO 95/31280 A1).

See entire disclosure of each document. Shukis, et al. provide the motivation that the specific choice of metal(s), promoter(s) and loadings depend upon the desired end use of the catalyst, and these variables can readily be adjusted by those of ordinary skill in the art based upon the end use (p. 4, l. 28-p. 6, l. 20). Shukis, et al. further provide the motivation that catalyst preparation would be well known to those of ordinary skill in the relevant art and such catalysts are prepared by impregnating the substances with the appropriate components, followed by various drying, sulfiding and/or calcining steps as required for the appropriate end use (p. 4, l. 28-p. 6, l. 20). Shukis, et al. further disclose the use of chelating compounds such as EDTA and MEA (monoethanolamine) for impregnating the porous support material (p.8, l. 21-p.9, l. 22) as well as ethylene diamines (table 4, p. 13). The amount of the chelating compound ranges from 0.01-1.0 grams of chelating agent per gram of catalyst composition (p.7, l. 15-16). Shukis, et al. use at least 5 wt% amorphous alumina (p. 4, l. 12).

In general, the transposition of process steps, or the splitting of one step into two, where the processes are substantially identical or equivalent in terms of function, manner and result, was held to not patentably distinguish the processes. Ex Parte

Rubin (POBA 1959) 128 USPQ 440, Cohn v. Comr. Pats. (DCDC 1966) 251 F Supp 378, 148 USPQ 486).

There are several overlapping ranges such as the weight percent of the amorphous alumina, substitution of any one of the metals in the Markush group, choice of chelating agent based on the hardness or softness of the metal chosen and the atomic radii which would be compatible with the chelating agent, and order of addition of the elements to the support material and order of steps would be within the prevue of one of ordinary skill in the art as evidenced by the statements in the instant application along with supporting caselaw.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ryan, et al. (EP 0164162 A1) in view of Rony, et al. (US 3855307) and further in view of Shukis, et al. (WO 95/31280 A1) as applied to claims 6-8, 13-14, 17 above, and further in view of Franzmann, et al. (US 4271269 A).

See entire disclosure. Franzmann, et al. disclose a method of immobilizing an enzyme to a substrate by using an amino alkoxy silane (col. 3, l. 25-50), particularly N-amino-ethyl-gamma-aminopropyltrimethoxysilane. The utility of this compound is in its ability to adhere an enzyme or compound to the silica surface, therefore it would have been obvious to one of ordinary skill in the art to use a compound such as an amino alkoxy silane to strongly adhere the metallic element to the porous substrate, particularly if the metallic substrate is too large to fill the pore volume of the substrate.

One of ordinary skill in the art would be assured that the catalyst would not simply fall off the carrier by using an adhesive material.

***Response to Arguments***

Applicant's arguments with respect to arguments filed 1/27/06 have been considered but are moot in view of the new grounds of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennine M. Brown whose telephone number is (571) 272-1364. The examiner can normally be reached on M-R 9:30 AM - 7:30 PM; Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

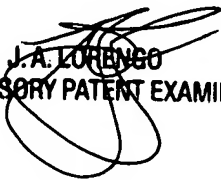
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jmb

  
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SUPERVISORY PATENT EXAMINER